ORDER

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

6000.30C

01/25/01

Subj: National Airspace System Maintenance Policy

1. PURPOSE. This order establishes maintenance policy for the National Airspace System (NAS). It defines Airway Facilities (AF) role in integrating, managing, maintaining, and operating the NAS infrastructure, as well as determining outsourcing requirements.

2. DISTRIBUTION. This order is distributed to the Associate Administrators for Air Traffic Services and Research and Acquisitions; to the Free Flight Phase One Program Office; to the division level in Airway Facilities, Air Traffic, and the Air Traffic System Requirements Service in Washington; to the division level at the Logistics Center, the Academy, and to certain organizations at the Technical Center; to the branch level in the regional Airway Facilities division; and to all Airway Facilities field offices with a standard distribution.

3. CANCELLATION. Order 6000.30B, Policy for Maintenance of the National Airspace System (NAS) Through the Year 2000, dated October 8, 1991, and Order 4450.10, Airway Facilities Procedures for Planning and Administration of Maintenance Contracts, dated November 11, 1992, are canceled.

4. BACKGROUND. Title 49 of the United States Code requires the Federal Aviation Administration (FAA) to manage the use of national airspace and the movement of air traffic in that airspace. The NAS consists of people, equipment, and procedures working together to provide services that accomplish this primary mission.

5. EXPLANATION OF CHANGES. This order confirms FAA policy to place the responsibility for integration, management, maintenance, and operation of the NAS infrastructure on the Director of Airway Facilities. This order provides high-level policy with broad application that reflects current procedures while enabling future operational needs and requirements to be satisfied. Changes in this revision include:

a. Removing specific Remote Maintenance Monitoring (RMM) design requirements and replacing with a policy to use RMM.

b. Removing references to the Maintenance Management System (MMS) and replacing with a policy to track resources and keep records.

c. Removing specific requirements for the Maintenance Control Centers (MCC) and replacing with policy to monitor, control, and manage NAS Infrastructure.

d. Adding policy defining AF's role in making outsourcing determinations for maintenance activities.

    e.   Revising the title.

    f.   Clarifying maintenance responsibilities and expectations.

    g.   Defining three levels of maintenance.

    h.   Adding policy on the use of prototypes.

    i.   Determining the functional elements of logistics required with acquisition.

6. **AUTHORITY TO CHANGE THIS ORDER.** The Associate Administrator for Air Traffic Services may issue changes to this order as necessary. The Administrator reserves the authority to approve changes which establish policy, delegate authority, or assign responsibility.

7. **DEFINITIONS.**

    a. **National Airspace System (NAS).** The NAS is a complex collection of systems, procedures, facilities, aircraft, and people. These components work together as one system to ensure safe and efficient services are provided to the flying public, airlines, and airports.

    b. **NAS Services.** Core functions performed by the NAS in the execution of its mission to provide safe separation and control over aircraft; e.g., separation assurance, traffic management, aviation information, navigation, and landing.

    c. **NAS Infrastructure.** The physical components of the NAS, excluding people. This includes systems, facilities, leased services, support services, inventory, vehicles, and real estate.

    d. **NAS Infrastructure Services.** The physical components of the NAS, excluding people, that support the core functions performed by the NAS in the execution of its mission to provide safe separation and control over aircraft; e.g., communication, navigation, surveillance, and information relevant to the aeronautical environment.

    e. **Critical Service.** Functions or services that if lost would prevent users of the NAS from exercising safe separation and control over aircraft.

8. **RESPONSIBILITIES.** Air Traffic Services (ATS) is the line of business charged by the FAA Administrator to provide NAS services. The Associate Administrator of Air Traffic Services has in turn assigned the Director of Airway Facilities the mission of ensuring that the NAS operates at the required level of service. To accomplish this, AF is responsible for:

    a.   Integration, management, operation, and maintenance of the NAS infrastructure.

    b.   Implementation and management of operations and maintenance procedures.

    c.   Development, management, and support of the technical work force.

9. **POLICY.** AF shall operate and maintain the NAS infrastructure in a way that strives to prevent

unanticipated loss of service, minimizes the impact of a lost service, and reacts to restore lost services efficiently. This level of maintenance shall be provided regardless of the maintaining organization. AF shall consider safety foremost when establishing policy on operations and maintenance procedures, acquisition of new systems, and the determination of outsourcing decisions for maintenance activities.

10   MAINTENANCE PHILOSOPHY. The NAS shall be operated, maintained, and supported to provide a level of service consistent with the expectations of the users of the NAS and those NAS services. Airway Facilities uses three levels of maintenance support to meet the obligation and responsibility of ensuring a safe and efficient NAS: field maintenance, engineering support, and depot level support. The following are typical responsibilities for each level.

a.   Field Maintenance Support. AF system specialists are responsible for management, operation, and maintenance of the NAS infrastructure. Field maintenance includes monitoring alarms and system status either locally or at an AF control center, analyzing system performance for degradation, performing certification, performing preventive maintenance, performing restoration activities, and understanding the functional relationships of components within a system and systems within the NAS. Specialists shall be able to identify faults, validate the results of Fault Isolation Testing (FIT) and Built-in Testing (BIT), and perform fault isolation when FIT/BIT results are inconclusive. Responsibilities also include supporting the implementation of new systems and maintaining software programs.

b.   Engineering Support. Engineering support organizations are responsible for providing centralized engineering support. This support includes the capability of identifying and correcting systemic deficiencies, supporting the development and implementation of new systems, developing system improvements, developing and maintaining software programs, developing and maintaining technical publications, managing radio spectrum used by the NAS, providing assistance to system specialists to correct complex problems, and performing functions best allocated to a central location.

c.   Depot Support. The FAA Logistics Center is responsible for providing centralized logistics support. This support includes the capability to manage and perform depot level repair activities, provide failure trend analysis, and provide logistics resources and assets for the NAS infrastructure.

11.   POLICIES RELATED TO THE OPERATIONS AND MAINTENANCE OF NAS SYSTEMS AND SERVICES. AF is responsible for enhancing the operation of the NAS. AF provides NAS infrastructure services by maintaining communication, navigation, surveillance, automation, and air traffic management (CNS/ATM) systems and defining the procedures to operate these systems.

a.   Reliability Centered Maintenance. AF shall use Reliability Centered Maintenance (RCM) methods to provide the required level of NAS availability, prevent unanticipated loss of service, and minimize costs. RCM methods and processes consist of the following scheduled activities:

(1)   Condition Monitoring Performance Checks. A scheduled inspection, test, or performance measurement to:

(a)   Determine whether an item is performing its required functions in accordance with associated performance standards and is in, or will remain in, a satisfactory condition until the next scheduled inspection.

(b)   Detect warning signs or indications of potential failures.

(c)   Predict the projected life expectancy of an item using statistical information, local facility knowledge, and other local factors and make the determination if the item should be replaced before it fails.

(2) Alignments and Calibration Tasks. Scheduled tasks performed to restore the capability of an item at or before a specified interval. Alignments ensure that systems operate within established performance standards. Calibrations ensure that performance measurements are accurate.

(3) Consumable Replacements. Scheduled replacement or discarding of a disposable item at or before a specified interval, regardless of its condition at the time; e.g., filter, oil, or coolant.

(4) Failure-Finding Inspections. A scheduled task performed to determine if there are specific hidden failures, which have not yet caused the system to fail but which may lead to a system failure if not corrected.

b.   Restoration. When a malfunction is identified, maintenance shifts from a preventive mode to a corrective mode in a manner consistent with the required level of availability.

(1)   Restoration consists of the activities required to return the NAS infrastructure to its fully capable state.

(2)   Restoration shall be accomplished in a timely manner consistent with maintaining the required level of service.

(3)   When geographic or economic constraints limit accessibility and preclude preventive methods, only corrective methods will be performed.

c.   Minimizing the Impact from a Loss of Service. AF shall strive to reduce the impacts of lost NAS services by:

(1)   Utilizing appropriate risk management practices.

(2)   Communicating anticipated duration of lost service to appropriate NAS users/managers.

(3)   Using alternate/standby equipment if available.

d.   Certification. Certification is a quality control method used by AF to ensure NAS systems and services are performing as expected. AF shall determine certification requirements. AF's independent discretionary judgment about the provision of advertised services, the need to separate profit motivations from operational decisions, and the desire to minimize liability make the regulatory function of certification and oversight of the NAS an inherently governmental function.

e.   Remote Maintenance Monitoring (RMM).

(1)   RMM is a recognized and preferred means of performing maintenance on the NAS.

Increasing emphasis will be placed on using RMM when it is cost effective and there is an operational benefit. Cost effectiveness is determined by an independent organization within the FAA. AF is responsible for determining RMM requirements, including which NAS systems shall have RMM and the remote operational information required from a NAS system.

> **(2)** AF will remotely perform maintenance activities including:
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> > **(a)** Monitoring system status and alarms.
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> > **(b)** Managing system configuration.
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> > **(c)** Performing fault isolation and restoration.
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> > **(d)** Conducting analysis of system performance.
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> > **(e)** Performing periodic maintenance.
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> > **(f)** Performing certification.

(3) The means of providing RMM will be compatible with other NAS systems and include methods of determining if the RMM is providing reliable information. RMM shall provide means to ensure only authorized personnel can use it in accordance with FAA security policy.

(4) When the means of remotely monitoring the system fails, the system shall continue to operate.

12. POLICIES RELATED TO THE MANAGEMENT OF NAS SYSTEMS AND SERVICES.
Centralized management methods shall be used to manage AF resources and perform NAS infrastructure management functions not efficiently performed with a distributed method.

a. NAS Infrastructure Management. Centralized control centers shall be established to manage the NAS infrastructure. Management functions include:

> **(1)** Monitoring status and controlling NAS systems and services.
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> **(2)** Providing coordination and direction for the maintenance and restoration of NAS systems and services.
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> **(3)** Identifying and analyzing NAS infrastructure performance trends.
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> **(4)** Evaluating and upward reporting overall system operation and status.
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> **(5)** Coordinating maintenance alerts.
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> **(6)** Tracking, analyzing, and predicting the costs of NAS infrastructure performance.

b.   Resource Tracking. AF shall manage and track NAS infrastructure resources.

c.   Documentation and Record Keeping. AF shall collect all data and maintain the records required to satisfy all legal, maintenance, and quality assurance requirements.

d.   NAS Performance Reporting and Trend Analysis. Analysis shall be conducted to report NAS infrastructure status and detect trends that may adversely affect the cost, quality, and quantity of service(s) provided.

13   POLICIES RELATED TO THE MODERNIZATION OF NAS SYSTEMS AND SERVICES.

AND SERVICES. AF shall support the modernization of the NAS by identifying degradations in existing capabilities, defining operational requirements in a timely manner, assisting the development of life-cycle support plans, and participating in the acquisition process. AF shall support NAS modernization by ensuring implementation and integration efforts are properly coordinated.

a.   NAS Modernization Methods. Regardless of the method, a maintenance concept shall be developed by AF and tailored to the specific approach used for modernization. The maintenance concept will be defined as early in the acquisition process as possible. Modernization methods include:

(1)   Non-Developmental Items (NDI). Commercial-Off-The-Shelf (COTS) and Non-Developmental Items (NDI) will be used where they are available and cost effective over the entire life cycle and capable of fulfilling operational requirements, either "as is" or with minor modification.

(2)   Agency Developed. FAA-sponsored research and development programs customized for the NAS.

(3)   Out of Agency Developed. Non-FAA sponsored research and development programs.

(4)   Prototypes. Prototypes are used to evaluate and/or demonstrate the effectiveness of proposed capabilities. They are necessary to further the evolutionary development of the NAS.

(a)   Evaluation of prototypes shall not unsatisfactorily degrade the current capabilities of the NAS.

(b)   When prototypes are integrated into the NAS, an appropriate level of support will be provided as defined by internal and external stakeholders and sponsors.

(c)   Maintenance of prototypes will be provided in a manner consistent with the required level of support.

(d)   Prototypes accepted for full-scale development shall receive full integrated logistics support planning. Prototypes not supported by the sponsor shall be removed from the NAS.

(e)   The integrated logistic support plan shall include information on how existing prototypes will be transitioned to the full-scale production baseline.

b.   Training. Continued emphasis shall be placed on the AF system specialist as the most important element in ensuring system performance and integrity. The FAA shall provide training at the appropriate time to equip the technical work force with the knowledge, skills, and abilities to perform general and specific operations and maintenance tasks and to execute certification responsibilities.

c.   Life-Cycle Management. AF shall determine operational needs including how each NAS system will be sustained throughout the entire life cycle of the acquisition process. These needs must be sufficient to express what is necessary for each NAS system to provide the required level of service. AF shall assist the requirements, acquisition, and logistics organizations in translating these needs into requirements and effective life-cycle support plans that include at least the following elements: maintenance planning; maintenance staffing; maintenance support facilities; packaging, handling, storage, and transportation; sparing and supply support; support equipment; technical data; and training.

d.   Methods of Life-Cycle Support. AF shall support the development of the life-cycle support strategy for each system in the NAS. AF shall participate with the requirements, acquisition, and logistics organizations in selecting the best blend of contractor and Government support techniques.

e.   Outsourcing. Outsourcing is a recognized means of providing maintenance of the NAS. AF shall recommend which maintenance activities are to be outsourced. Inherently governmental functions cannot be outsourced.

(1)   The Director of Airway Facilities shall ensure AF participates in the acquisition process for making outsourcing determinations of maintenance activities. AF shall make outsourcing recommendations as early in the acquisition cycle as practicable.

(2)   Outsourcing recommendations will strive to achieve what is in the best public interest. The criteria for these recommendations will consider the following:

(a)   The operational requirements including response time for restoration.

(b)   The complexity of the maintenance and integration with other NAS systems.

(c)   NAS safety and national security.

(d)   A comparison of costs and benefits.

(e)   The risks associated with contracts and logistics factors.

(f)   Impact to the users.

(3)   Types of outsourcing.

(a)   Non-FAA Government. Maintenance performed by other Government organizations shall be agreed upon in writing. The standards used for maintenance shall be at least equivalent to FAA standards.

(b)   Non-Government. Outsourced maintenance activities performed by private

organizations shall be defined by contract. AF shall determine the standards used for maintenance.

14.   WAIVERS. All waiver requests regarding any portion of this policy must be submitted for approval to the Associate Administrator for Air Traffic Services with appropriate coordination. The request shall contain the rationale for the waiver, justification, and other appropriate information to support the request.

ORIGINAL SIGNED BY

Jane F. Garvey

Administrator

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